FOREST CONTROL *by* CONTINUOUS INVENTORY

"Today I have grown taller from walking with the trees."

...Karle Wilson

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"The world is not so much in need of new thoughts as that when thought grows old and worn with usage it should, like current coin, be called in, and from the mint of genius, reissued fresh and new."

Alexander Smith, 1830-1867

"On the Writing of Essays"

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The Forester

USING TOMORROW'S METHODS TODAY

MEASURING TREE BOLES WITH MEASURING POLES

It is a most interesting fact that about half of the pulpwood and sawlog trees in the Lake and Central States have a usable length of less than 26 feet. This means that a man of average height, using a 20-foot bamboo pole, can reach high enough to measure half of the commercial trees in the forest. Many industrial foresters in Region 9 take tree measurements in this way when establishing C.F.I. plots.

The proposal to take a measuring pole into the woods has not yet been accepted by all foresters, and the old-time timber cruiser is downright scornful of the suggestion.

The experienced C.F.I. cruiser, returning for the second measurement five years after plot establishment does not question the value of the pole. He has learned that it increases accuracy, improves the comparability of the length records and helps to standardize the length taking process. The mere fact that each cruiser can measure to the same point to which the previous cruiser measured five years before is most helpful in deciding the new length. When the usable length for the original record is known by actual measurement it is much less difficult, on the second measurement, to decide whether the tree has remained fixed in length or whether it has changed.

Description of the Measuring Pole

Any ordinary bamboo fishing pole, as long as it is possible to buy at the local sportsman's store, is well suited to tree length measurement. Bamboo poles are inexpensive and reasonably strong and flexible. They are easily whipped up into the lower tree branches and conveniently moved from tree to tree.

Each pole is graduated into two-foot alternating bands of black Scotch electric tape, to strengthen the pole and increase the convenience of taking measurements. On occasion two poles have been taped together to increase the total length, but a pole longer than 24 feet is awkward to handle and breaks more easily than one 20 feet in length.

Pole measurements induce more careful woods work and help correct obvious errors. It is not difficult to carry a 20-foot bamboo pole in the woods and instructions for the use of the pole may be quite simply listed.

INSTRUCTIONS FOR THE USE OF THE BAMBOO MEASURING POLE

1. To conveniently carry the pole through the woods, drag it by the butt end.

2. To measure the tree, hold the pole as high as possible above the head and along the tree bole.

3. Fix the eye on the 26-foot point on the tree selecting for that purpose a distinctive stub or bole mark.

4. Step back from the tree a distance of about half its usable length continuing to hold the 26-foot point with the eye.

5. For trees with usable lengths longer than the pole reach, estimate the commercial length above the pole.

6. For trees with the usable length shorter than the pole reach, measure the actual length from the two-foot graduations on the pole.

7. When in doubt about the true top point of the usable length, be sure to scan the tree from two sides at approximate right angles to each other. For special studies this should always be done, for the true top point cannot be safely decided from only one side of the tree.

8. Judge the tree length along the contour. Do not go up or down hill to get a look at the length of the bole.

9. Whip-like bamboo poles are much more convenient than stiff aluminum or wooden rods.

10. Branchy balsam fir, spruce and scrub oak in Region 9 are the only trees difficult to pole measure along the bole.

11. Usable lengths always include the length from the stump height to top merchantability. This includes the butt-offs and cull sections.

12. Unusually tall trees may be length checked by hypsometer. The 20-foot bamboo pole can be conveniently used to measure off the 25 or 50-foot distance from the base of the tree.

13. The measuring pole often breaks off dead limbs in the lower crown. Be careful lest these limbs fall on your head and into your eyes.

COMMENTS ON POLE MEASURING INSTRUCTIONS

The least accurate tree dimension record made in timber cruising is that of usable length. Here is where errors also occur in C.F.I. To improve the accuracy of this measurement the use of the pole has been advocated. Even with the pole the length is not always directly measurable because the top of the tree is 50 to 100 feet away from the cruiser's eye. The top diameter of the tree and the merchantability limit must be estimated, for they cannot be measured. Several guiding rules are suggested to aid in the selection of the top point and in the determination of the top diameter.

1. It is generally sufficient to give the minimum length of top pulp stick or sawlog allowed and to state in the instructions that this piece must be reasonably straight, clean and sound.

2. It is advisable to judge the top diameter outside the bark, (d.o.b.). It may generally be assumed that the bark thickness is 6 to 10% of the tree diameter at this top point. A 4-inch top d.i.b. approximates 4-1/2" d.o.b.; an 8" top d.i.b. is almost 9" d.o.b.

3. Many trees are tall, straight, sound and clean of limbs. With such trees the length of merchantable bole is decided by the top diameter. The cruiser with some knowledge of taper rates in trees is best qualified to judge merchantable length in these difficult cases. These two rules of thumb may be of some assistance:

The Gevorkiantz .8, .7, .6 Rule for Sawlog Trees

D.B.H., O.B. times .8 equals D.I.B. at 16 feet
D.B.H., O.B. times .7 equals D.I.B. at 32 feet
D.B.H., O.B. times .6 equals D.I.B. at 48 feet

The Region Nine Rule for Pulpwood Trees

D.B.H. times 4 is the average usable length for 5" to 12" trees.

For trees over 12" D.B.H. the length gradually reduces and a factor of 3 should be used.

This 4 factor may be adjusted to fit taller or shorter trees.

These taper rules guide our decisions on length, but they are not the deciding factors. It should always be understood that tree length is above average when the form class and site quality are above average and below average when the form and site quality are below average.

4. Only the minimum top diameter is fixed in C.F.I. cruising in the Lake and Central States. All other top diameters are flexible, varying with the size of the tree, the utilization and cutting standards and the cleanness and soundness of the top section of the tree.

5. Hysometer readings for individual tree lengths are not only slower than pole measurements but they are frequently less accurate. Accuracy declines because the cruiser makes his measurements at a considerable distance from the tree top and because the more or less normal cruiser fails to use the hysometer after a few days of cruising and ocularly estimates most of the tree lengths. This is not good enough in C.F.I.

6. When the pole is found to be inadequate with very tall trees, most convenient substitutes are the Lufkin Pocket Cruiser Stick # 55-1/2 (Folding) developed by Wm. W. Barton of U. S. F. S., Region 7, Philadelphia, Pa., or an ordinary, rolled Stanley pocket rule in inches. With either of these tools, plumbed 25 feet from the eye, and held 25 feet distant from the tree, the usable length of the tree in feet is the number of inches intercepted on the rule by the eye. For tall trees move back to 50 feet and multiply the inches on the scale by two.

CURRENT EXPERIENCE WITH THE MEASURING POLE

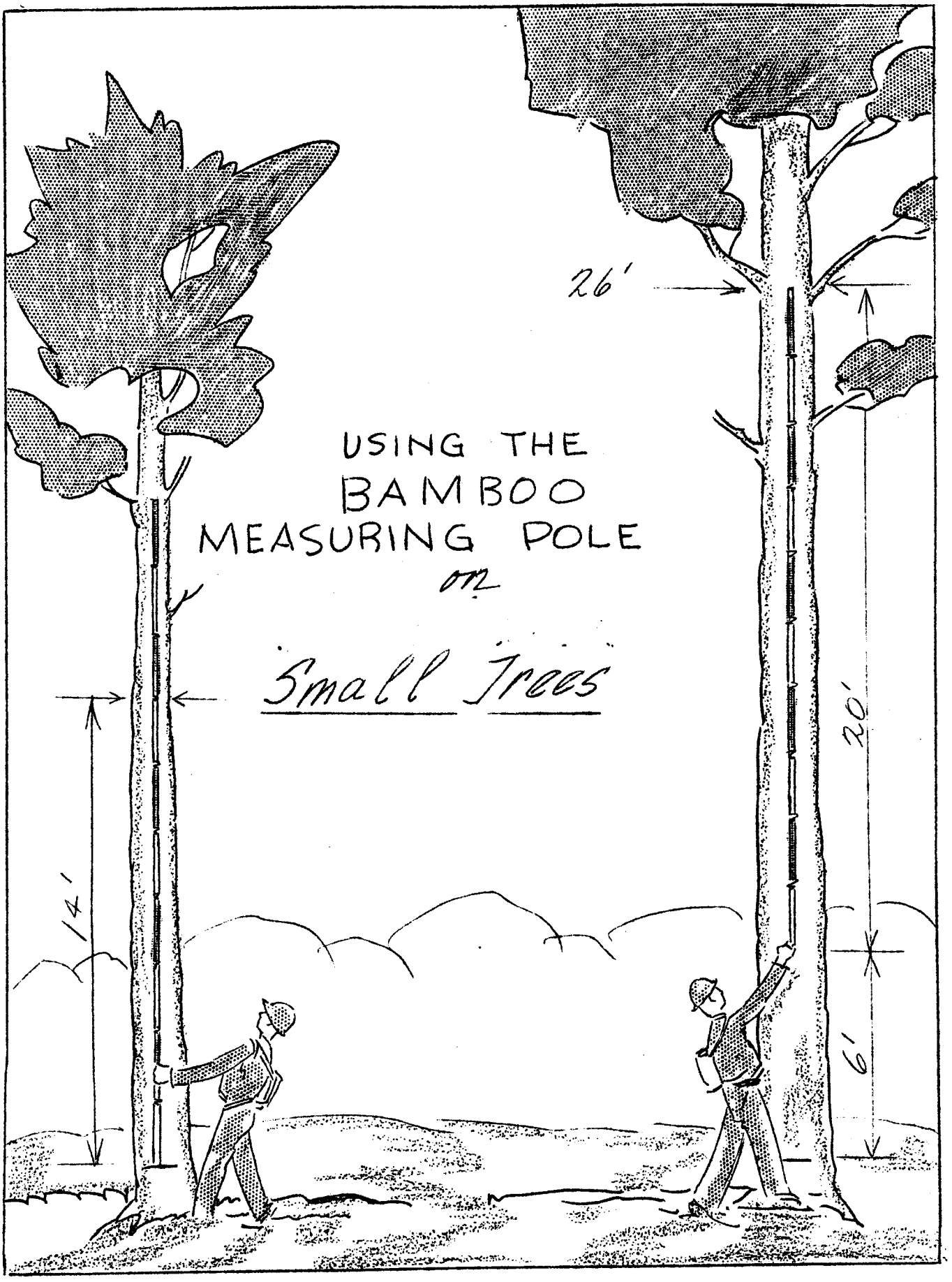
The bamboo measuring pole has been in sporadic use in Region 9 for the past 10 years but the advantages of the pole did not fully materialize until large scale remeasurement projects were set under way last year. The errors and inconsistencies of ocular and hypsometer length records made at the time of the first measurement were clearly demonstrated with the use of the pole at the second measurement.

Three large industrial projects totaling 50,000 trees were re-inventoried last year, using the pole for height measurements and all seven of this year's cases will be so handled. By the end of 1958 pole measuring on private and industrial lands will be pretty general in Region 9, and the technique should be developed to its greatest efficiency.

Until some better length measuring technique is developed, we believe in the efficacy of the measuring pole. Acceptance of the pole measuring method and proficiency in its application are bound to increase cruising accuracy and standardize the results between cruisers and between inventories.

Cal Stott

CAL STOTT,
Forester



USING THE BAMBOO MEASURING POLE ON Small Trees

USING THE BAMBOO MEASURING POLE on Large Trees